

(12) UK Patent Application (19) GB (11) 2 332 356 (13) A

(43) Date of A Publication 23.06.1999

(21) Application No 9726900.5

(22) Date of Filing 20.12.1997

(71) Applicant(s)

Industrial and Domestic Pest Control Products
Limited
(Incorporated in the United Kingdom)
Unit 2 Canal Terrace, Off Kilton Road, WORKSOP,
S80 2DF, United Kingdom

(72) Inventor(s)

Steven Blythe

(74) Agent and/or Address for Service

Loven & Co
Quantum House, 30 Tentercroft Street, LINCOLN,
LN5 7DB, United Kingdom

(51) INT CL⁶

A01M 23/30

(52) UK CL (Edition Q)

A1M MDH

(56) Documents Cited

GB 2252485 A

WO 85/05007 A1

US 5588249 A

US 4342172 A

US 4270299 A

(58) Field of Search

UK CL (Edition Q) A1M MDH

INT CL⁶ A01M 23/00 23/15 23/18 23/20 23/30

Online:WPLEPODOC PAJ

(54) Abstract Title

Vermin trap

(57) An animal trap comprising a housing (19) and a spring trap mechanism (13-18 fig.4) located within the housing, wherein the housing has an entrance (4) and a pivoted door 6, to close the entrance. The trap allows the user to select either to capture an animal, or to capture an animal and kill it. Furthermore, the spring trap mechanism can be set, and the door opened and closed, from outside the housing.

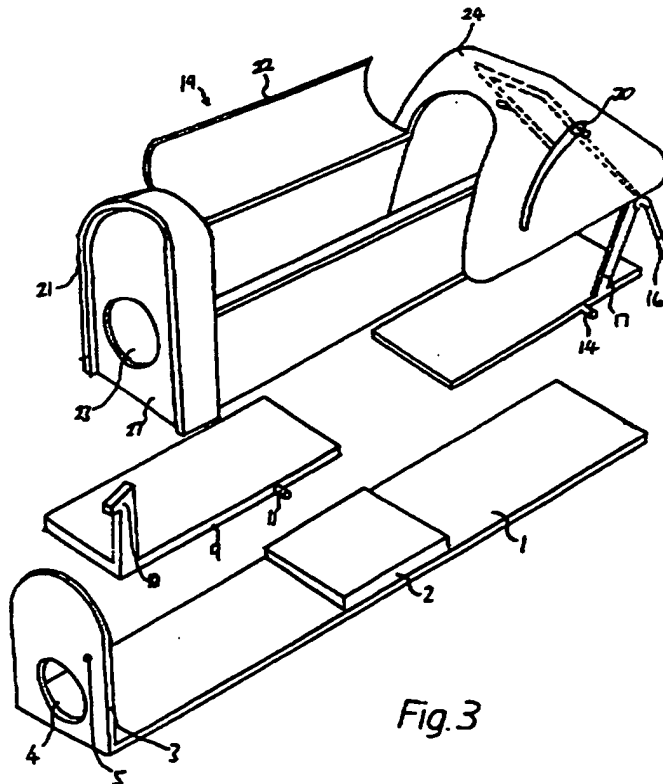


Fig.3

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1995

Vermin Trap

Field of the Invention

This invention relates to vermin traps, and in particular to a trap which captures rodents.

5 Background of the Invention

It is generally considered undesirable for properties to be infested with vermin. This is particularly so for domestic properties.

Rodents in particular present a significant vermin problem, since they are known carriers of disease. Where a property is found to be infested with rodents, it is generally desirable to control the infestation, either by killing the rodents or by capturing and removing them. This can be done trapping, or poisoning.

Various types of traps to catch and/or kill rodents are well known. Conventionally, mousetraps include an arm that is spring mounted and which pivots from a primed position to a closed position in response to the trap being tripped by an animal. There are many problems associated with the described mousetraps.

First of all setting such traps is hazardous. The catch mechanisms of these traps are unreliable or difficult to secure, so the catch may release whilst the person setting the trap still has his fingers in the path of the arm. The catch may be too sensitive or too insensitive, and this may result in the trap being activated before the animal is in a suitable position to be killed, or the animal entering and leaving the trap without the trap being activated.

Another problem associated with conventional traps is that the jaw must travel through approximately 180 degrees, which can allow the rodent to take the bait without being trapped, due to the time taken for the jaw to travel through 180 degrees.

Yet another problem associated with conventional traps is that an animal struck by the jaw is not held in the trap in all cases. For example, the jaw may simply break off a mouse's front legs. The injured mouse may then crawl to another location and eventually die. The corpse may be in an inaccessible place and may not be noticed until it has rotted sufficiently to produce a foul stench.

Of the times when a conventional trap is set and activated, a kill rate of approximately 60% is achieved.

Also, a mouse trapped in a conventional mousetrap must be released which involves a messy, unsanitary, and unpleasant process due to the extensive injuries often suffered by the mouse when it is trapped.

Many rodent traps, and in particular mousetraps, are used in domestic environments. Often domestic users do not wish to kill rodents, but would rather capture
5 them and then release them at another location.

Attempts have been made to solve some of these problems, and examples can be found in AU-B-57527/86, US 3992803, US 5148624, and US 5172512.

However, these devices simply provide housings for essentially conventional
10 traps that limit the number of directions from which an animal may enter the jaw of the trap.

Summary of the Invention

The invention provides an animal trap comprising a housing and a spring trap mechanism located within the housing, wherein the housing has an entrance and closing
15 means to close the entrance.

Preferably, the means to close the entrance comprises a door. More preferably, the door is mounted on the housing to pivot between a first position in which the entrance is open and a second position in which the entrance is closed. More preferably, the door is biased by its own weight into the second position.

In one embodiment of the invention, an indicator is provided to indicate the
20 door's position. The indicator may extend from the door. Advantageously, the housing is provided with an aperture through which the indicator extends. The aperture may be a slot.

Advantageously, the invention further comprises a door controller switchable
25 between two states, the controller being arranged to hold the door open in its first state and to permit closure of the door in its second state. The door controller may be switched from its first state to its second state in response to detection of an animal inside the housing by a detection means. The door controller may comprise a latch member arranged to engage with a portion of the door. The detection means may
30 comprise a pivotally mounted platform. The door controller may be formed integrally with the said platform.

In one embodiment of the invention, the spring trap mechanism comprises a bail arm, which may be made from metal or plastics for example. Advantageously, pegs extend outwardly from the bail arm and through arcuate slots provided on opposite sides of the housing.

5 Preferably, the spring trap mechanism comprises a platform pivotally mounted in the housing. The platform may be provided with means to hold the bail arm in the primed position, which means may comprise an elongate member. The elongate member may comprise an indent. Preferably, a pair of elongate members is provided, and more preferably, one elongate member of the pair extends from either side of the plat-
10 form.

Advantageously, the housing comprises separable upper and lower portions. An access panel may be provided in the upper and/or lower portions, and preferably the upper portion, to provide access to the inside of the housing. The access panel is suitably connected to the upper or lower portion of the housing by a hinge. The upper
15 and lower portions of the housing may be formed as plastics mouldings.

The device of the invention is particularly advantageous because it allows the user to select either to capture an animal, or to capture an animal and kill it. Furthermore, the spring trap mechanism can be set, and the door opened and closed from outside the housing. Additionally, any animals caught in the spring trap can be removed
20 without the user having to look at the corpse. In one form of the invention, the device is a very simple mechanical device which does not require maintenance.

By enclosing the spring trap mechanism, the device of the invention is made childproof and pet-proof, it not being possible for children and pets (bigger than rodents) to enter the trap.

25 **Brief Description of the Drawings**

In the drawings which illustrate an exemplary embodiment of a trap according to the invention:

Figure 1 shows side and end views of the base portion of the trap;

Figure 2 is an exploded view of the parts of the portion of the trap shown in
30 Figure 1;

Figure 3 is a side view of the spring trap mechanism; and

Figure 4 is an exploded view of the trap.

Detailed Description of the Preferred Embodiment

Figures 1 and 2, illustrate a base portion of a trap according to the invention, the base portion comprising a platform 1 having affixed to the upper surface thereof a plate 2. An end wall 3 is fixed to one end of the platform 1. The end wall 3 has an aperture 4 which serves as an entrance to the trap. In the end wall 3, to one side of the aperture 4 is an aperture 5.

A door 6 having a signaling member 8 extending therefrom is pivotally mounted on the end wall 3 by means of a pin passing through the aperture 5 and an aperture 7 in the door 6. The door 6 is pivotable between a first position in which the entrance 4 is open and a second position in which the entrance is closed. A trigger plate 9 having pivot pins 11 and a trigger pin 10 extending therefrom is mounted between the end wall 3 and the plate 2.

A spring trap mechanism is mounted at the end of the base portion opposite to end wall 3. The spring trap mechanism comprises a trigger plate 13 having pivot pins 14 and stays 17 extending therefrom. Each of the stays is provided with an indent 18 in which a portion of a bail arm 16 rests when the trap is set. When assembled, the free ends of bail arm 16 are attached to springs 15.

Referring now to Figure 1, the trigger plate 9 is shown holding the door 6 open. A trigger pin 10 formed integrally with the trigger plate 9 engages with a notch 7' protruding from the door 6, thereby holding the door 6 open. This is indicated by a signaling member 8 which is raised above the end wall 3.

When an animal, for instance a mouse, passes through the entrance 4 and on to the trigger plate 9 trigger pin 10 is caused to disengage and release the door 6, thereby allowing it to close, when the mouse has passed beyond the pivot point 11. This is due to the weight of the mouse causing the trigger plate 9 to pivot on pins 11, which results in pin 10 disengaging from notch 7' thereby allowing door 6 to pivot under its own weight into a position closing the aperture 4. The mouse then cannot escape.

The operation of the spring trap mechanism is best described with reference to Figure 3 and 4. A moulded housing 19 comprises an end wall 27 having an aperture 23 therein, and a web extending around its periphery. An elongate central portion of 28

has a lid 19 mounted thereon by means of a hinge. Access to the inside of the assembled trap is gained by opening the lid. The other end 24 of the housing 19 is adapted to house the spring trap mechanism. The sides of portion 24 are provided with arcuate slots 26 in which pegs 20 extending from bail arm 16 slide. When the trap is assembled, the free ends of bail arm 16 simply rest against the top of the platform 1 and the inside of the rear wall of portion 24 of the housing 19, where the two meet. Movement of the bail arm 16 is confined by the slot 26 which only permits the bail arm to move in an arc between the ends of the slot.

The housing is provided with bores to receive the pivot pins 11 and 14 of the trigger plates 9 and 13 respectively. The trigger plates 9 and 13 are mounted at a height above the platform 1 which permits the plates to rotate sufficiently to release the door and bail arm respectively. The end wall 27 fits into slot 25, thereby preventing lateral movement of housing 19.

It can be seen from Figure 4 that springs 15 are mounted on a shaft 29 extending across the rear of the portion 24 of the housing 19. Each of the springs 15 has an inwardly extending portion 15', each of which engages with a part of the bail arm 16. As the bail arm 16 is lifted upwards from position A, so the energy stored in the springs increases. The substantially horizontal portions 16' of bail arm 16 engage with indents 18 to hold the bail arm in the primed position B.

Referring again to Figure 1, when the mouse has moved sufficiently far into the trap to close the door 6, it then moves onto the plate 2 and subsequently onto the spring trap trip platform 13. The springs 15 are rated so that it is possible to put bait on the trip platform 13 without activating it, but the weight of a mouse is sufficient to cause the plate 13 to pivot on pins 14. The stays 17 move forward and the bail arm drops due to the energy stored in springs 15.

It can be seen from Figure 3 that in the set position, there is a small gap between the pegs 20 and the end of the slot 26. This permits the bail arm 16 and stays 15 to be returned to the position A shown in Figure 4.

The trap of the invention can be used either to capture animals, or to capture and kill animals.

The dimensions of the trap, the sensitivity of the door closing means and the spring ratings can be selected to capture and/or kill different types of vermin, for example, rats, mice, or shrews.

CLAIMS

1. An animal trap comprising a housing and a spring trap mechanism located within the housing, wherein the housing has an entrance and closing means to close the entrance.
- 5 2. An animal trap according to Claim 1, wherein the means to close the entrance comprises a door.
3. An animal trap according to Claim 2, wherein the door is mounted on the housing to pivot between a first position in which the entrance is open and a second position in which the entrance is closed, the door being biased by its own weight into
10 the second position.
4. An animal trap according to Claim 2 or 3, comprising a door controller switchable between two states, the controller being arranged to hold the door open in its first state and to permit closure of the door in its second state.
5. An animal trap according to Claim 4, wherein the door controller comprises a latch member arranged to engage with a portion of the door.
15
6. An animal trap according to Claim 4 or 5, wherein the door controller is switched from its first state to its second state in response to detection of an animal inside the housing by a detection means.
7. An animal trap according to Claim 6, wherein the detection means comprises a pivotally mounted platform.
20
8. An animal trap according to Claim 7, wherein the door controller is formed integrally with the said platform.
9. An animal trap according to any preceding claim, wherein the spring trap mechanism comprises a bail arm.
- 25 10. An animal trap according to Claim 9, wherein the bail arm is made from metal or plastics.
11. An animal trap according to Claim 9 or 10, wherein pegs extend outwardly from the bail arm and through arcuate slots provided on opposite sides of the housing.

12. An animal trap according to any of Claims 9 to 11, wherein the spring trap mechanism comprises a platform pivotally mounted in the housing.

13. An animal trap according to Claim 12, wherein the platform is provided with means to hold the bail arm in the primed position.

5 14. An animal trap according to Claim 13, wherein the means for holding the bail arm comprises an elongate member having an indent.

15. An animal trap according to Claim 14, comprising a pair of said elongate members.

10 16. An animal trap according to Claim 15, wherein one elongate member of the pair extends from either side of the platform.

17. An animal trap according to any preceding claim, wherein the housing comprises separable upper and lower portions.

15 18. An animal trap according to Claim 17, wherein an access panel is provided in the upper and/or lower portions, to provide access to the inside of the housing.

19. An animal trap according to Claim 18, wherein the access panel is connected to the upper or lower portion of the housing by a hinge.

20. An animal trap according to Claim 17, 18 or 19, wherein the upper and lower portions of the housing are formed as plastics mouldings.

20 21. An animal trap, substantially as described with reference to, or as shown in, the drawings.



Application No: GB 9726900.5
Claims searched: 1-21

Examiner: Ross Cavill
Date of search: 14 January 1999

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.Q): A1M (MDH)

Int CI (Ed.6): A01M 23/00,/16,/18,/20,/30

Other: Online: WPI, EPODOC, PAJ

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2252485 A (BAILEY) note housing 22 and closable entrance 24	1
X	WO 85/05007 A1 (LANGLI) note closure and trap element 12	1-6
X	US 5588249 (FLINNER) whole document	1-4,6-10, 12-14,17, 18, 19
X	US 4342172 (GUANCI) whole document	1-10,12-14
X	US 4270299 (LONG) whole document	1-10,12-14 17

X Document indicating lack of novelty or inventive step
Y Document indicating lack of inventive step if combined
with one or more other documents of same category.
& Member of the same patent family

A Document indicating technological background and/or state of the art.
P Document published on or after the declared priority date but before
the filing date of this invention.
E Patent document published on or after, but with priority date earlier
than, the filing date of this application.

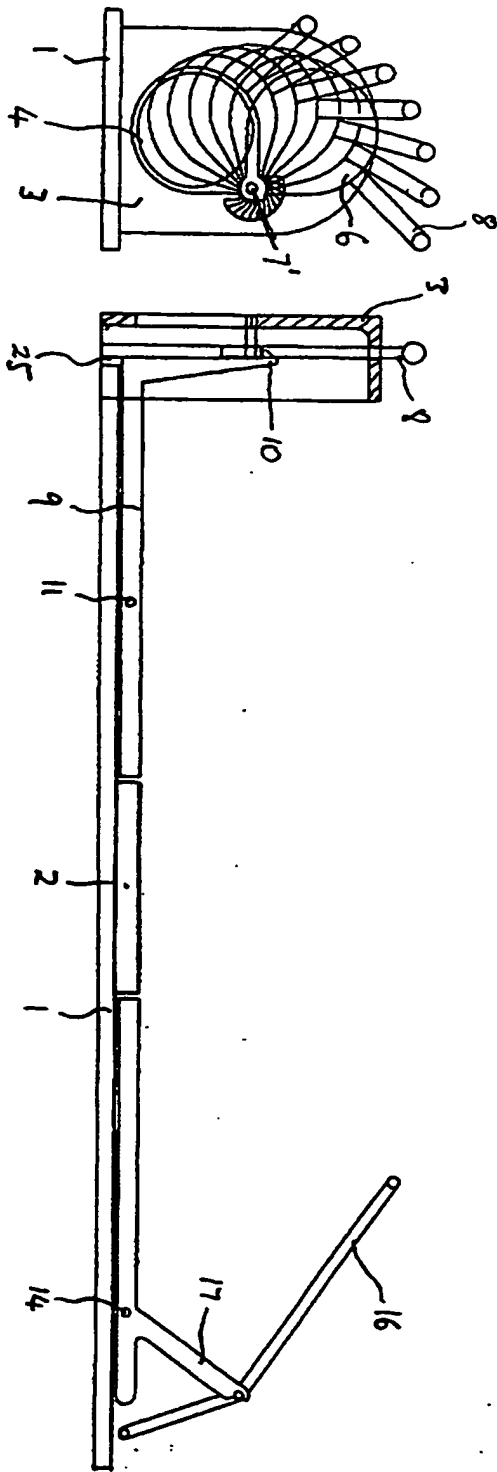


Fig. 1

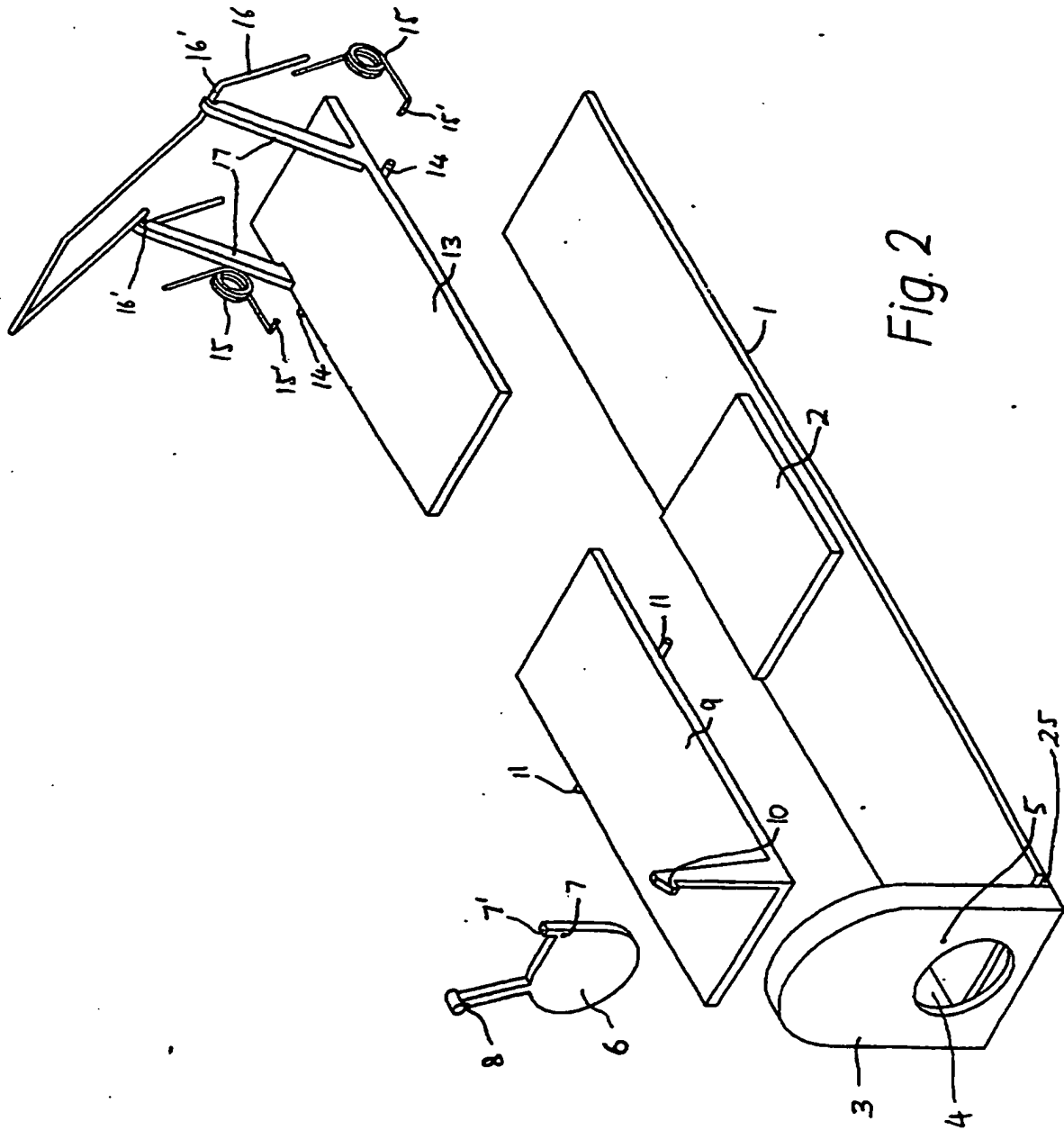


Fig. 2

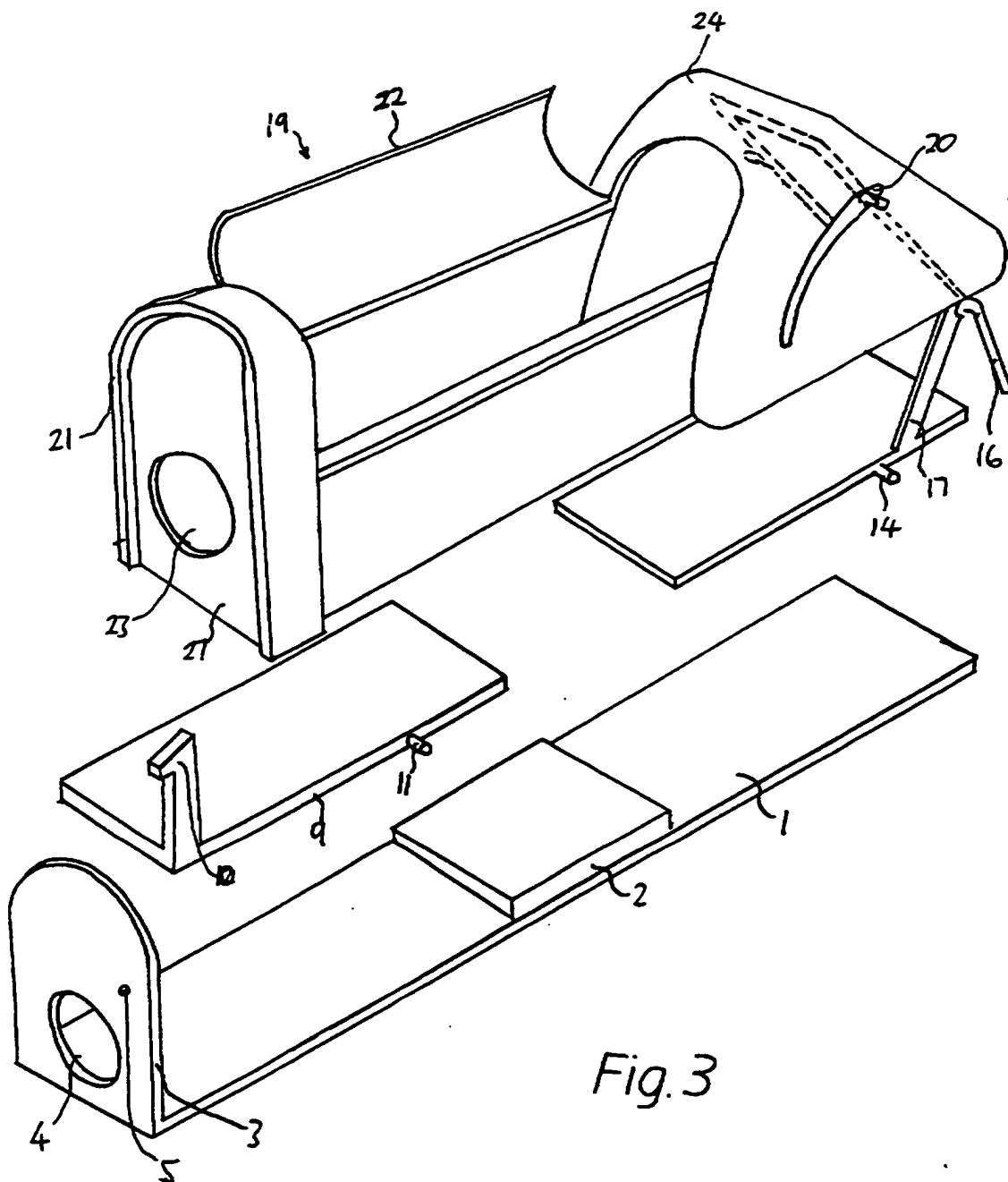


Fig. 3

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☒ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☐ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.